Glossary

100-year flood. A flood event of a magnitude that occurs, on average, once every 100 years, and equates to a 1-percent probability of occurring in any given year.

Adequate public facilities. Facilities which have the capacity to serve development without decreasing levels of service below locally established minimums.

Affected environment. In an environmental impact statement, a description of the existing environment covering information that directly relates to the scope of the proposed action and alternatives that are analyzed in the impact analysis. The affected environment provides a baseline and must include sufficient detail to support the impact analysis, including cumulative impacts. Environmentally sensitive resources, such as floodplains and wetlands, threatened and endangered species, prime and unique agricultural lands, and historic and cultural resources, must be identified.

Agriculture. Improvements or activities associated with the growing, cultivating, and/or harvesting of crops and livestock, including those activities necessary to prepare the agricultural commodity for shipment.

Agricultural land-use designation. As presented in this environmental impact statement, an area designated for the tilling of soil, raising of crops and livestock, and horticulture for commercial purposes along with all those activities normally and routinely involved in horticulture, and the production of crops and livestock. Includes related activities consistent with Agricultural uses.

Atmospheric stability. A measure of the amount of mixing and turbulence in the atmosphere.

Attainment area. Any area that is designated, pursuant to 42 U.S.C. 7407(d) of the *Clean Air Act of 1970*, as having ambient conditions equal to or less than national primary or secondary ambient air quality standards for a particular air pollutant or a group of air pollutants.

Animal-unit-month (AUM). An AUM is defined as the amount of forage required by an animal-unit (i.e., a mature cow weighing 453.6 kg [1,000 lbs] with unweaned calf) for one month assuming average daily consumption to be 11.8 kg (26 lbs) of dry matter. Therefore, by convention, an AUM equals 353.8kg (780 lbs) of dry forage. The amount of area that is required for each AUM determines the stocking rate or the actual number of animals on a specific area at a specific time. The area of land allowed per animal unit for the entire grazing period of the year is expressed as animal units/unit area (AU/Ha) or unit area/AUM (Ha/AUM).

Background radiation. Radiation from cosmic sources; naturally occurring radioactive materials, including radon (except as a decay product of source or special nuclear material); consumer products containing nominal amounts of radioactive material or producing nominal amounts of radiation; and global fallout that exists in the environment (e.g., from the testing of nuclear explosive devices).

Barrier. Man-made components of a waste management system designed to prevent or impede the release of radionuclides or other contaminants to the biosphere. Barriers can include the waste form, waste container, and materials placed over, under, or around these containers or wastes. For example, an engineered cap constructed over a waste site is a barrier.

Basalt. A dark grey to black, fine grained igneous rock composed primarily of calcium feldspar and pyroxene, with or without olivine. This material underlies the Hanford Site, and may be quarried for use as riprap in the construction of caps to prevent the migration of contaminants in surface soils and burial grounds by preventing infiltration of precipitation.

Benthic. Living on or at the bottom of a body of water.

Biodiversity. The diversity of ecosystems, species, and genes, and the variety and variability of life. Biodiversity also is a qualitative measure of the richness and abundance of ecosystems and species in a given area.

Bounding. Represents the maximum reasonably foreseeable event or impact. All other reasonably foreseeable events or impacts would have fewer and/or less severe environmental impacts.

Candidate species. A plant or animal species that is under consideration by the U.S. Fish and Wildlife Service or Washington Department of Fish and Wildlife for listing as either threatened or endangered.

Cap. Construction of an engineered barrier over the top of a waste site in order to prevent or impede the release of radionuclides or other waste material into the environment.

Carcinogen. Any substance or agent that is capable of producing cancer.

Chronic exposure. The absorption or intake of hazardous material over a long period of time (e.g., over a lifetime).

Class I area. Under the *Clean Air Act of 1970*, the designation applies to pristine areas, such as national parks and wilderness areas, where substantial growth is effectively precluded in order to avoid degradation of air quality. Goat Rocks Wilderness Area is the closest Class I area to the Hanford Site, located approximately 90 miles northwest.

Class II area. A designation for areas under the *Clean Air Act of 1970* where moderate degradation of air quality is permissible. The Hanford Site and its immediate vicinity are in a Class II Area.

Cold War. Intense economic, political, military, and ideological rivalry between nations just short of military conflict. Major expansions in the production of nuclear materials for military applications were undertaken at the Hanford Site so that the Nation could maintain an overwhelming arsenal of nuclear weapons. In the context of this environmental impact statement, the Cold War refers to the period from the end of World War II to 1989 (when the Berlin Wall was dismantled).

Confined aquifer. An aquifer bounded above and below by less permeable layers. Groundwater in the confined aquifer is under a pressure greater than atmospheric pressure.

Conservation. Areas of ecological, geological, archaeological, and cultural significance and sensitivity that are to be protected and managed so as to maintain the essential qualities derived from the landscape, but contain supplemental values of scientific, education, historical, scenic, and mineral importance that may be suited to human uses insofar as the essential qualities remain intact over the landscape.

Conservation (Mining) land-use designation. As presented in this environmental impact statement, an area reserved for the management and protection of archeological, cultural,

ecological, and natural resources. Limited and managed mining could occur as a special use (e.g., a permit would be required) within appropriate areas. Limited public access would be consistent with resource conservation. Includes activities related to Conservation (Mining), consistent with the protection of archeological, cultural, ecological, and natural resources.

Conservation (Mining and Grazing) land-use designation. An area reserved for the management and protection of archeological, cultural, ecological, and natural resources. Limited and managed mining and commercial grazing could occur as a special use (e.g., a permit would be required) within appropriate areas. Limited public access would be consistent with resource conservation. Includes activities related to Conservation (Mining and Grazing), consistent with the protection of archeological, cultural, ecological and natural resources.

Controlled area. An area to which access is controlled to protect individuals from exposure to radiation or radioactive and/or hazardous materials.

Contamination. The presence of unwanted radioactive and/or hazardous materials above background concentrations in environmental media (e.g., air, soil, water) or on the surfaces of structures, objects, or personnel.

Criteria pollutants. Substances for which national ambient air quality standards have been established by the U.S. Environmental Protection Agency.

Critical areas. Critical areas are required by Chapter 36.70A of the *State of Washington's Growth Management Act*. Guidelines for defining critical areas are given in WAC 365-190-080. Items to be considered by the local planning agency are as follows: (1) wetlands, (2) aquifer recharge areas, (3) frequently flooded areas, (4) geologically hazardous areas, and (5) fish and wildlife habitat conservation areas. Counties and cities may use information prepared by the Washington Department of Fish and Wildlife (WDFW) to classify and designate locally important habitats and species. Priority habitats and priority species are being identified by the WDFW for all lands in Washington State. While these priorities are those of the Department, they and the data on which they are based may be considered by counties and cities.

Critical habitat. Any air, land, or water area determined (through a regulatory action under the *Endangered Species Act of 1973*) to be essential to the survival of a population of an endangered or threatened species or habitat deemed to be necessary for the recovery of a threatened or endangered species. Critical habitat has not been designated on the Hanford Site.

Cumulative impact. The impact on the environment that results from the incremental impact of the action when added to other past, present, and reasonably foreseeable, future actions. Cumulative impacts can result from individually minor, but collectively significant actions taking place over a period of time.

Cultural resources. Areas or objects that are of cultural significance to human history at the national, state, or local level. Generally includes paleontological, pre-contact, and post-contact resources, as well as resources of traditional use or religious value to Native Americans.

Decommissioning. The process of removing a facility from operation, followed by decontamination, entombment, dismantlement, or conversion to another use.

Decontamination. The actions taken to reduce or remove substances that pose a substantial present or potential hazard to human health or the environment, (e.g., removing radioactive contamination from facilities, soil, or equipment by washing, chemical action, mechanical cleaning, or other techniques).

Development. Any change in use, or extension of the use of the land, including, but not limited to, the construction, reconstruction, conversion, structural alteration, relocation, or enlargement of any improvements.

DOE orders. Requirements internal to the U.S. Department of Energy that establish agency policy and procedures, including procedures for compliance with applicable laws.

Derived concentration guides. Concentrations of radionuclides in air and water that an individual could continuously consume, inhale, or be immersed in at average annual rates without receiving an effective dose equivalent greater than 100 mrem/yr.

Dose (or radiation dose). A generic term that means absorbed dose, dose equivalent, effective dose equivalent, committed dose equivalent, committed effective dose equivalent, or total effective dose equivalent. Relates to a chemical to which an organism is exposed; generally denotes the quality of radiation or energy that is absorbed by the organism.

Dose conversion factor. Any factor used to change an environmental measurement to dose in units of concern.

Ecosystem. The interacting system of a biological community and its physical environment, considered as a unit in nature.

Emission standards. Legally enforceable limits on the quantities and/or kinds of air pollutants that can be emitted into the atmosphere.

Endangered species. Animals, birds, fish, plants, or other living organisms threatened with extinction by man-made or natural changes in their environment. Requirements for declaring a species endangered are contained in the *Endangered Species Act of 1973*.

Emergency planning zone (EPZ). The EPZ is an area surrounding a facility for which emergency planning and preparedness efforts are carried out to ensure that prompt and effective actions can be taken to minimize the impact to onsite personnel, public health and safety, and the environment in the event of an operational emergency. The EPZ begins at the boundary of the facility and ends at a distance for which special planning and preparedness efforts are no longer required. Access restrictions are not required within an EPZ; however, DOE would be responsible for ensuring adequate planning and preparedness efforts. A plan that evaluates hazard assessments and determines the size of EPZs is a requirement of DOE Order 151.1, *Comprehensive Emergency Management System Order*.

Environmental justice. The fair treatment of people of all races, cultures, and income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. Executive Order 12898 required Federal agencies to identify and address any potentially disproportionately high and adverse human health and environmental effects of agency policies, programs, and activities on minority and low-income populations.

Evapotranspiration. The combined processes by which water is transferred from the surface of the Earth to the atmosphere, including evaporation of liquid or solid water, and transpiration from plants.

Exclusive use zone (EUZ). The EUZ is an area designated for DOE operations activities associated with a waste site or facility. Each DOE nuclear facility is encouraged by DOE Order 420.1, *Facility Safety*, to maintain siting distance for a public buffer zone as part of the defense in depth approach to prevent public health effects in the event of an unmitigated accident. The EUZ is reserved for DOE or other hazardous operations with severely restricted public access. This

zone extends from the facility fence line to a distance at which threats to the public from routine and accidental releases diminish to the point where public access can be routinely allowed. It is inside the emergency planning zone (EPZ).

Exposure scenario. A set of facts, assumptions, and inferences about how exposure takes place that aids the exposure assessor in evaluating, estimating, or quantifying exposures.

Facility area. An area within the Hanford Site Boundary immediately surrounding a facility or group of facilities that functions under process safety management and a common emergency response plan.

Floodplain. The portion of a river valley that becomes covered with water when the river overflows its banks at flood stage.

Food chain. The pathways by which any material entering the environment passes from the first absorbing organism through plants and animals, including humans.

Fugitive dust. The particulate matter that is stirred up and released into the atmosphere during excavation or construction activities.

Grazing. To feed on growing herbage, attached algae, or phytoplankton

Groundwater. The supply of water below the land surface in the zone of saturation.

Groundwater mounds. A hydrologic condition, often caused by artificial recharge of an aquifer, in which "mounds" of groundwater are created. These mounds have been known to alter the natural hydraulic gradients and drainage patterns of an aquifer. The pressure and weight of the groundwater mounds can increase the hydrostatic head so all nearby groundwater, and any associated contaminant plume, could move more rapidly toward a receptor.

Grouting. The process of immobilizing or fixing solid or liquid forms of waste to enable safe storage or disposal. Generally, grout is a fluid mixture of cementitious materials and waste that sets up as a solid mass.

Half-life. The time in which half the atoms of a particular radioactive substance disintegrate to a different nuclear form. Used as a measure of the persistence of radioactive materials; each radionuclide has a characteristic, constant half-life. Measured half-lives vary from millionths of a second to billions of years.

Hanford Federal Facility Agreement and Consent Order. The *Hanford Federal Facility Agreement and Consent Order* (also referred to as the Tri-Party Agreement), is a binding agreement, negotiated pursuant to Section 120 of the *Comprehensive Environmental Response, Compensation, and Liability Act of 1980,* and other regulations signed by the U.S. Department of Energy, the U.S. Environmental Protection Agency (Region 10), and the Washington State Department of Ecology, to organize responsibilities for remediation of the Hanford Site and to establish milestones by which the remediation will be accomplished. This agreement commits the three agencies to a long-term cooperative program to remediate the contaminated sites at Hanford. The Tri-Party Agreement contains a blueprint for remediation and uses enforceable milestones to keep the program on schedule.

Hazard classification. A safety classification based on potential onsite consequences. Criteria for this classification are discussed in DOE Order 5480.23, *Nuclear Safety Analysis Reports*.

Hazardous air pollutant. Any air pollutant subject to a standard promulgated under 42 U.S.C.

Section 7412 or other requirements established under 42 U.S.C. Section 7412 of the *Clean Air Act of 1970*, including 42 U.S.C. Section 7412 (g), (j), and (r) to the *Clean Air Act of 1970*. The State of Washington regulates similar pollutants as "toxic air pollutants." However, State regulations apply only to new sources; Federal regulations apply to new and existing sources. The list of chemicals regulated by the state overlaps with the Federal list, but is considerably longer.

Hazardous material. A substance or material, including a hazardous substance, that has been determined by the U.S. Secretary of Transportation to be capable of posing an unreasonable risk to health, safety, and property when transported in commerce.

Hazardous substance. Any substance that, when released to the environment in an uncontrolled or unpermitted fashion, becomes subject to the reporting and possible response provisions of the *Clean Water Act of 1977* and the *Comprehensive Environmental Response, Compensation, and Liability Act of 1980.*

Hazardous waste. Those wastes that are identified as hazardous pursuant to RCRA (40 CFR 261).

High-efficiency particulate air (HEPA) filter. A filter with an efficiency of at least 99.95% that is used to separate particles from exhaust streams prior to release into the atmosphere.

Highest and best use (of property). Section 101-47.4909 of the Federal Property Management Regulations defines the “highest and best use” as that use to which a property can be put that produces the highest monetary return from the property, promotes its maximum value, or serves a public or institutional purpose. The “highest and best use” determination must be based upon the property’s economic potential, qualitative values inherent in the property, and utilization factors affecting land use such as zoning, physical characteristics, other private and public uses in the vicinity, neighboring improvements, utility services, access, roads, location, and environmental and historical considerations.

High-Intensity Recreation land-use designation. As presented in this environmental impact statement, an area allocated for high-intensity, visitor-serving activities and facilities (commercial and governmental) such as golf courses, recreational vehicle parks, boat launching facilities, Tribal fishing facilities, destination resorts, cultural centers, and museums. Includes related activities consistent with High-Intensity Recreation.

High-level waste. The highly radioactive waste material that results from processing or reprocessing spent nuclear fuel, including liquid waste produced directly from reprocessing and any solid waste derived from the liquid that contains a combination of transuranic and fission product nuclides in quantities that require permanent isolation. High-level waste may include other highly radioactive material that the U.S. Nuclear Regulatory Commission, consistent with existing law, determines by rule to require permanent isolation.

Historic resources. The sites, districts, structures, and objects that are considered limited and nonrenewable because of an association with historic events, persons, or social or historic movements.

Horticulture. The science and art of growing fruits, vegetables, flowers, or ornamental plants.

Hydraulic conductivity. The capacity of a porous medium to transport water. The parameter relating the volumetric flux to the driving force in flow through a porous medium (particularly water through soil); a function of both the porous medium and the properties of the fluid.

Hydraulic gradient. The slope of the water table.

Impact. The effect, influence, alteration, or imprint of an action. Impacts may be beneficial or detrimental.

Industrial land-use designation. As presented in this environmental impact statement, an area suitable and desirable for activities, such as reactor operations, rail, barge transport facilities, mining, manufacturing, food processing, assembly, warehouse, and distribution operations. Includes related activities consistent with Industrial uses.

Industrial-Exclusive land-use designation. As presented in this environmental impact statement, an area suitable and desirable for treatment, storage, and disposal of hazardous, dangerous, radioactive, and nonradioactive wastes. Includes related activities consistent with Industrial-Exclusive uses.

Infrastructure. The basic services, facilities, and equipment needed for the operation and growth of an area.

Institutional controls. The term "institutional controls" is intended to be a broad term. It generally includes all non-engineered restrictions on activities, access, or exposure to land, groundwater, surface water, waste and waste disposal areas, and other areas or media. Some common examples of tools to implement institutional controls include restrictions on use or access, zoning, governmental permitting, public advisories, installation master plans, and legal restrictions such as deed notices or other environmental easements. Institutional controls may be temporary or permanent restrictions or requirements. |

Interim action (NEPA). An action that may be undertaken while work on a required program environmental impact statement is in progress, and the action is not covered by an existing program statement. An interim action may not be undertaken unless such action: (1) is justified independently of the program; (2) is itself accompanied by an adequate environmental impact statement or has undergone other *National Environmental Policy Act of 1969* review; and (3) will not prejudice the ultimate decision on the program (i.e., interim action prejudices the ultimate decision on the program when the action tends to determine subsequent development or limits alternatives).

Ion exchange. The reversible interchange of ions of like charge within a medium.

Land use. A term used to indicate the utilization of any piece of land. The way in which land is being used is the land use.

Land-use planning. A decision-making process to determine the future or end use of a parcel of land, considering such factors as current land use, public expectations, cultural considerations, local ecological factors, legal rights and obligations, technical capabilities, and cost.

Life-cycle costs. All costs, except the cost of personnel occupying a facility, from the time that the space requirement is defined until the facility passes out of government hands.

Low-Intensity Recreation land-use designation. As presented in this environmental impact statement, an area allocated for low-intensity, visitor-serving activities and facilities, such as improved recreational trails, primitive boat launching facilities, and permitted campgrounds. Includes related activities consistent with Low-Intensity Recreation.

Low-level waste. Radioactive waste that is not classified as high-level waste, transuranic

waste, or spent nuclear fuel. Test specimens of fissionable material irradiated for research and development, and not for the production of power or plutonium, may be classified as low-level waste if the concentration of transuranic elements is less than 100 nanocuries per gram of waste. The U.S. Department of Energy, U.S. Environmental Protection Agency, and U.S. Nuclear Regulatory Commission share the responsibility for managing low-level waste.

Manhattan Project. The code name for the large-scale national project that developed the first atomic bomb.

Maximally exposed individual (MEI). An hypothetical person who lives near the Hanford Site who, by virtue of location and living habits, could receive the highest possible radiation dose.

Maximum contaminant level (MCL). Under the *Safe Drinking Water Act of 1974*, the maximum permissible concentrations of specific constituents in drinking water that is delivered to any user of a public water system that serves 15 or more connections and 25 or more people. The standards take into account the feasibility and cost of attaining the standard. In this environmental impact statement, MCLs are referred to as *Drinking Water Standards*.

Milestone. An important or critical event that must occur in order to achieve the objectives of the Tri-Party Agreement.

millirem (mrem). One thousandth (10^{-3}) of a rem (see also, rem).

Mitigation. Those actions that avoid impacts altogether, minimize impacts, rectify impacts, reduce or eliminate impacts, or compensate for impacts.

Mitigation bank. Wetland enhancement, restoration, or creation undertaken to provide mitigation (compensation) for wetlands losses from future development activities undertaken in advance of development as part of a credit program.

Mixed waste. Waste containing both radioactive and hazardous components as defined by the *Atomic Energy Act of 1954* and the *Resource Conservation and Recovery Act of 1976*, respectively.

Modified Mercalli intensity (MMI). The MMI scale (designated by Roman numerals I through XII) is used to measure the intensity of an earthquake in a particular area. It differs from the Richter Scale (which measures the energy released by an earthquake). Briefly, the scale is: I --Barely Felt; II -- Just Felt; III -- Noticeable; IV -- Rattling; V -- Felt Strong; VI -- Frightening; VII -- Disturbing; VIII -- Panicking; IX -- Some Damage; X -- Much Damage; and XI -- Complete Destruction.

Multiple use management. Management of the various surface and subsurface resources so that they are utilized in the combination of ways that will best meet the present and future needs of the public, without permanent impairment of the productivity of the land or the quality of the environment.

National Ambient Air Quality Standards (NAAQS). Air quality standards established by the *Clean Air Act of 1970*. Primary NAAQS are intended to protect public health with an adequate margin of safety. Secondary NAAQS are intended to protect the public welfare from any known or anticipated adverse effects of a pollutant.

National Environmental Research Parks. Outdoor laboratories set aside for ecological research to study the environmental impacts of energy developments and for informing the public of environmental and land use options. The parks were established under the U.S. Department of Energy to provide protected land areas for research and education in the environmental sciences and to demonstrate the environmental compatibility of energy technology development and use.

National Priorities List (NPL). A formal listing of the most hazardous waste sites in the nation, as established under the *Comprehensive Environmental Response, Compensation, and Liability Act of 1980*, that have been identified for remediation.

National Register of Historic Places. A list of architectural, historical, archaeological, and cultural sites of local, state, or national significance, established by the *Historic Preservation Act of 1966*, and maintained by the National Park Service. Sites are nominated to the Register by state or Federal agencies.

Nearest public access location. For facility accident analysis, the location of the nearest point where members of the public could be present, such as on an uncontrolled public highway that crosses the Hanford Site.

Nitrogen oxides (NO_x). Gases formed from atmospheric nitrogen and oxygen when combustion takes place under high temperature and high pressure. Nitrogen oxides include nitric oxide (NO) and nitrogen dioxide (NO_2). Nitrogen oxides are considered to be a major air pollutant and are regulated under the *Clean Air Act*. In the presence of sunlight, nitric oxide combines with atmospheric oxygen to form nitrogen dioxide, which can cause lung damage at high concentrations.

Nonattainment area. An area which is shown by monitoring data to exceed any national primary or secondary ambient air quality standard for a pollutant.

NO_x. A generic term used to describe oxides of nitrogen (see nitrogen oxides).

Nuclear fuel. Materials that are fissionable and can be used in nuclear reactors for the production of energy.

Nuclide. A generic term referring to all known isotopes, both stable and unstable, of the chemical elements.

Offsite. Any place located outside of the Hanford Site boundary.

Onsite. A place located within the Hanford Site boundary.

Operable unit. A discrete set of one or more release sites that are considered together for assessment and remedial activities. Criteria for placement of release sites into an operable unit include geographic proximity, similarity of waste characteristics and site types, and the possibilities for economy of scale.

Outfall. The end of a drain or pipe that carries waste water or other effluents into a ditch, pond, or river.

Overlay wildlife refuge. An overlay wildlife refuge is one which is owned by one or more Federal agencies and managed by the USFWS. |

Permeability. The degree of ease with which water can pass through a rock or soil.

Physiographic province. An extensive portion of the landscape, normally encompassing many hundred square miles, which portrays similar qualities of soil, rock, shape, and vegetation of the same geomorphic origin.

Planning criteria. The factors used to guide development of the land use plan, or revision, to ensure that it is tailored to the issues previously identified and to ensure that unnecessary data collection and analyses are avoided.

Plume. The cloud of a pollutant in air, surface water, or groundwater formed after the pollutant is released from a source.

Plutonium-Uranium Extraction (PUREX) Facility. The PUREX Facility on the Hanford Site used a chemical process to reprocess spent nuclear fuel and irradiated targets.

PM_{10}. All particulate matter in the ambient air with an aerodynamic diameter less than or equal to ten (10) micrometers.

Polychlorinated biphenyls (PCBs). A class of chemical substances formerly manufactured for use as an insulating fluid in electrical equipment. These chemical substances are highly toxic to aquatic life, persist in the environment, and accumulate in animal tissues.

Porosity. The ratio of the volume of pores of a material to the volume of its mass.

Post-contact resources. Sites, districts, structures, and objects considered limited and nonrenewable because of their association with renowned events, persons, or social movements.

Pre-contact resources. All evidences of human activity that predate recorded history and can be used to reconstruct lifeways and culture history of past peoples. These include sites, artifacts, and the contexts in which they occur.

Pre-contact. Of, relating to, or existing in times antedating written history. Pre-contact cultural resources are those that antedate written records of the human cultures that produced them.

Prehistoric resources. All evidence of human activity that predates recorded history and can be used to reconstruct lifestyles and cultural history of past peoples, including artifacts and the contexts in which the artifacts occur.

Preservation land-use designation. As presented in this environmental impact statement, an area managed for the preservation of archeological, cultural, ecological, and natural resources. No new consumptive uses (e.g., mining or extraction of non-renewable resources) would be allowed within this area. Limited public access would be consistent with resource preservation. Includes activities related to Preservation uses.

Probable maximum flood. The largest flood for which there is any reasonable expectancy in a specific area. The probable maximum flood is normally several times larger than the largest flood of record.

Process knowledge. The set of information used by trained and qualified individuals who are cognizant of the origin, use, and location of waste-generating materials and processes in sufficient detail to certify the identity of the waste.

Processing (of irradiated nuclear fuel). Applying a chemical or physical process designed to alter the characteristics of the nuclear fuel matrix or to recover a particular material.

Production reactor. A nuclear reactor that is used to irradiate target material to produce special nuclear material or by-product material.

rad. The unit of absorbed dose of ionizing radiation. One rad is equal to an absorbed dose of 100 ergs/gram.

Radiation (ionizing radiation). Alpha particles, beta particles, gamma rays, x-rays, neutrons, high-speed electrons, high-speed protons, and other particles capable of producing ions. In the context of this EIS, radiation does not include non-ionizing radiation such as radiowaves, microwaves, or visible, infrared, or ultraviolet light.

Radioisotope. An unstable isotope of an element that decays or disintegrates spontaneously, emitting radiation in the process. Approximately 5,000 natural and artificial radioisotopes have been identified. Usually synonymous with *radionuclide*.

Raptor. A bird of prey (e.g., hawk, eagle, etc.).

Red Zone. The Bureau of Reclamation's (BoR's) Red Zone is an administrative area on the Wahluke Slope set aside by the BoR from irrigated agricultural development while the BoR studies the connection between irrigation in this area and mass wasting events at the White Bluffs.

Recharge. Replenishment of water to an aquifer.

Record of Decision (ROD). A public document that records the final decision(s) concerning a proposed action. The ROD is based in whole or in part on information and technical analysis generated during either the *Comprehensive Environmental Response, Compensation, and Liability Act of 1980* process, or the *National Environmental Policy Act of 1969* process, both of which consider public comments and community concerns during the decision-making process.

Redd. The spawning ground or nest of various fish species; the term usually refers to salmon nests.

Region of influence. The region in which the direct and indirect principal socioeconomic and environmental justice effects of actions are likely to occur and are expected to be of consequence.

rem. The dosage of ionizing radiation that will cause the same biological effect as 1 roentgen of x-ray or gamma ray exposure. Acronym for roentgen-equivalent man.

Remediation. The process of cleaning up a site where a release of a hazardous substance has occurred.

Reprocessing (of nuclear fuel). Processing of reactor irradiated nuclear material (primarily spent nuclear fuel) to recover fissile and fertile material, in order to recycle the materials, primarily for defense purposes. Historically, reprocessing has involved aqueous chemical separations of desired elements (typically uranium or plutonium) from undesired elements in the fuel.

Research and Development land-use designation. As presented in this environmental impact statement, an area designated for conducting basic or applied research that requires the use of a large-scale or isolated facility. Includes scientific, engineering, technology development, technology transfer, and technology deployment activities to meet regional and national needs. Includes related activities consistent with Research and Development.

Reverse-well injection. Process in which solutes are injected in an underlying geologic formation through wells. During the early years of Hanford, waste solutions were pumped into reverse wells as a method of waste disposal.

Riparian habitat. A specialized form of wetland restricted to areas along, adjacent to, or contiguous with perennially flooded and intermittently flowing rivers and streams. Also, periodically flooded lake and reservoir shore areas.

Riprap. A loose assemblage of stones that may be used in cap construction. In caps, riprap is used as a capillary break to retard downward migration of water and to limit biointrusion.

Risk. Quantitative expression of possible loss that considers both the probability that a hazard causes harm and the consequences of that event.

Safety analysis report. A report, prepared in accordance with DOE Orders 5481.1B and 5480.23, that summarizes the hazards associated with the operation of a particular facility and defines minimum safety requirements.

Sanitary waste. Liquid or solid wastes that are not considered hazardous or radioactive, generated as a result of routine operations of a facility.

Saturated zone. A subsurface area in which all pores are filled with water under pressure equal to or greater than atmospheric pressure.

Scope. In an environmental impact statement, the range of actions, alternatives, and impacts to be considered.

Scoping process. An early and open public participation process for determining the scope of issues to be addressed and for identifying the significant issues related to a proposed action.

Sedimentary interbeds. Rock layers composed of materials, such as sand or gravel, which are derived from the breakdown of various rocks and are layered between other rock types.

Seismicity. The phenomenon of earth movements; seismic activity. Seismicity is related to the location, size, and rate of occurrence of earthquakes.

Sensitive species. A Washington State category for plant species considered vulnerable or declining, that could become endangered or threatened without active management or removal of threats. Also sometimes used as a generic term for any plant and wildlife species that are threatened or endangered, rare, vulnerable or declining, or monitored by state or Federal agencies.

Seral shrub-steppe. The developmental phase of a climax community with characteristic structure and plant species composition. The shrub-steppe community is typically a disclimax community of sagebrush and grasses caused by heavy grazing and wildland fire control policy.

Shrub-steppe. Typically a treeless area covered by grasses and shrubs and having a semiarid climate. Precipitation is typically very slight, but sufficient to support the growth of sparse grass and other plants adapted to living in conditions where water is scarce. Washington State Department of Fish and Wildlife considers shrub-steppe a priority habitat.

Solid waste. Any garbage, refuse, or sludge from a waste treatment plant, water supply treatment plant, or air pollution control facility and other discarded material, including, solid liquid, semisolid, or contained gaseous material resulting from industrial, commercial, mining, and

agricultural operations and from community activities. Solid waste does not include solid and dissolved material in domestic sewage, or solid or dissolved materials in irrigation return flows, or industrial discharges which are point sources subject to permits under Section 402 of the *Federal Water Pollution Control Act, as amended*, or source, special nuclear, or by-product material as defined by the *Atomic Energy Act of 1954*, as amended.

SO_x. A generic term used to describe oxides of sulfur. The combination of sulfur oxides with water vapor produces acid rain (see also, sulfur oxides).

Stabilization (of waste sites). Actions taken to reduce the environmental hazards associated with an area used for disposal of hazardous and/or radioactive materials.

Stakeholder. Any person or organization with an interest in or affected by U.S. Department of Energy activities. Stakeholders may include representatives from Tribal governments, Federal agencies, state agencies, Congress, unions, educational groups, industry, environmental groups, other groups, and members of the general public.

Sulfur oxides. Pungent, colorless gases formed primarily by the combustion of fossil fuels. Sulfur oxides are considered to be major air pollutants and may damage the respiratory tract and vegetation (see also, SO_x).

Superfund. The common name used for the *Comprehensive Environmental Response, Compensation, and Liability Act of 1980* and its amendments.

Surface water. All waters that are open to the atmosphere and subject to surface runoff (rivers, lakes, reservoirs, streams, impoundments, seas, estuaries, etc.) and all springs, wells, or other collectors that are directly influenced by surface water.

Surplus facility. Any facility or site (including equipment) that has no identified programmatic use and may or may not be contaminated with radioactive or hazardous materials to levels that require controlled access.

Syncline. A fold in the rock structure inclining upward on both sides of a median axis as in a downward fold of rock strata; opposite of anticline.

Threatened species. Any species that is likely to become an endangered species within the foreseeable future throughout all or a significant part of its range.

Transuranic waste. Waste containing more that 100 nanocuries of alpha-emitting transuranic isotopes, which have half-lives greater than 20 years, per gram of waste, except for (1) high-level radioactive waste; (2) waste that the U.S. Department of Energy has determined, with concurrence of the Administrator of the U.S. Environmental Protection Agency, does not need the degree of isolation required by 40 CFR 191; or (3) waste that the U.S. Nuclear Regulatory Commission has approved for disposal on a case-by-case basis in accordance with 10 CFR 61.

Transmissivity. A measure of the capacity of a water-bearing unit to transmit fluid. The product of the thickness and the average hydraulic conductivity of a unit. Also, the rate at which water is transmitted through an aquifer under a specific hydraulic gradient at a prevailing temperature and pressure.

Tritium. A radioactive isotope of the element hydrogen, with two neutrons and one proton (H-3).

Unconfined aquifer. An aquifer that has a water table or surface at atmospheric pressure. At Hanford, the unconfined aquifer is the uppermost aquifer and is the most susceptible to

contamination from Hanford Site operations.

Vadose zone. The area between the land surface and the top of the water table. Saturated bodies, such as perched groundwater, may exist in the vadose zone. The vadose zone is also known as the zone of aeration and the unsaturated zone.

Vegetation type. A classification of the plant community on a site based on the dominant plant species in the community.

Volatile organic compound (VOC). Chemical containing mainly carbon, hydrogen, and oxygen that readily evaporates at ambient temperature. Exposure to some organic compounds can produce toxic effects on biological tissues and processes.

Vulnerable aggregations. Vulnerable aggregations are animal species that must aggregate at some specific location and at a specific time to complete some action in their life cycle. These aggregations include sage grouse, a bat colony, great blue heron at a nesting rookery, snakes in a hibernaculum, migrating salmon at a river falls, elk herds during rut, etc. When these animals aggregate, the species becomes vulnerable aggregations that can be severely impacted by predators or disease.

Waste management. The planning, coordination, and direction of functions related to the generation, handling, treatment, storage, transport, and disposal of waste, as well as associated surveillance and maintenance activities.

Waste minimization. An action that economically avoids or reduces the generation of waste by source reduction, reducing the toxicity of hazardous waste, improving energy usage, or recycling. These actions are consistent with the general goal of minimizing present and future threats to human health, safety, and the environment.

Water level (water table). The top elevation of the groundwater.

Wetland. Those areas that are inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support a prevalence of vegetation typically adapted for life in a saturated soil environment. These areas are frequently transitional between terrestrial and aquatic systems.

Wilderness area. An area formally designated by Act of Congress as part of the National Wilderness Preservation System.

Wild and Scenic River. A portion of a river that has been designated by Congress as part of the *National Wild and Scenic Rivers Act of 1968*.

Withdrawn lands. Withdrawn lands are lands DOE has “borrowed” from other Federal agencies for DOE’s mission. These lands could be either Public Domain lands (as in the case of the BLM and some of the BoR lands) or lands that left the Public Domain and were subsequently acquired by another Federal agency for their mission (i.e., BoR lands for the Columbia Basin Irrigation Project) that were in turn borrowed by DOE for its mission.

Worker. Any person whose day-to-day activities are controlled by process safety management programs and a common emergency response plan. When evaluating the potential consequences of an accident, the worker is defined as an individual located within 100 m (328 ft) downwind of the facility location where the accident occurs.

Zoning. A police power measure, enacted by general purpose unit of local government, in which

the community is divided into districts or zones within which permitted and special uses are established as are regulations governing lot size, building bulk, placement, and other development standards.

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